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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,694	11/25/2003	Fritz Friedersdorf	4271-13	3045
23117	7590	03/14/2006		
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER LEE, PATRICK J	
			ART UNIT 2878	PAPER NUMBER

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<p>Application No.</p> <p align="center">10/720,694</p>	<p>Applicant(s)</p> <p align="center">FRIEDERSDORF ET AL. </p>	
	<p>Examiner</p> <p align="center">Patrick J. Lee</p>	<p>Art Unit</p> <p align="center">2878</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-14,16-24 and 44-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-14,16-24 and 44-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Amendment***

1. This action is in response to amendment filed February 1, 2006.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 3-7, 9, 12-13, & 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,784,983 B1 to Bjerkan et al.

With respect to claim 1, Bjerkan et al disclose a system for monitoring cables comprising: Bragg gratings (4) as a fiber optic condition sensor embedded within a tube (10). The tube (10) is embedded with electric wires (11) within coated cable (1) (see figure 5). Bragg gratings have a predetermined calibration to see the effect of strain on

the gratings (see column 3, lines 22-27). The sensors (4) are able to determine changes along the cable (see column 3, lines 28-32).

With respect to claim 3, Bjerkan et al disclose the use of plastic as a polymeric coating (see column 4, lines 10-13).

With respect to claim 4, Bjerkan et al illustrate the use of axially spaced Bragg gratings (4).

With respect to claim 5, Bjerkan et al disclose a plurality of Bragg grating sensors (4) disposed in tube (10).

With respect to claim 6, Bjerkan et al illustrate the use of axially spaced Bragg gratings (4).

With respect to claim 7, Bjerkan et al disclose the detection of a temperature condition (see column 3, lines 58-67).

With respect to claim 9, Bjerkan et al disclose a system for monitoring cables comprising: Bragg gratings (4) as a fiber optic condition sensor embedded within a tube (10). The tube (10) is embedded with electric wires (11) within coated cable (1) (see figure 5). Bragg gratings have a predetermined calibration to see the effect of strain on the gratings (see column 3, lines 22-27). The sensors (4) are able to determine changes along the cable (see column 3, lines 28-32). Bjerkan et al disclose detector system (7) as a data acquisition system and a monitor for providing a signal of the condition.

With respect to claim 12, Bjerkan et al disclose a system for monitoring cables comprising: Bragg gratings (4) as a fiber optic condition sensor embedded within a tube

(10). The tube (10) is embedded with electric wires (11) within coated cable (1) (see figure 5). Wire (11) serves as a wire element including one electrical conductor, while cable (1) serves as an electrical insulator surrounding wire element (11). Bragg gratings have a predetermined calibration to see the effect of strain on the gratings (see column 3, lines 22-27). The sensors (4) are able to determine changes along the cable (see column 3, lines 28-32). Bjerkman et al disclose detector system (7) as a data acquisition system and a monitor for providing a signal of the condition.

With respect to claim 13, Bjerkman et al disclose the fiber optic condition sensor (4) to be embedded physically within electrical insulator (1).

With respect to claim 14, Bjerkman et al disclose a plurality of wires (11) as a plurality of electrical conductors, with sensors (4) associated physically with wires (11) as to be surrounded by cable (1).

With respect to claim 16, Bjerkman et al illustrate the use of axially spaced Bragg gratings (4).

With respect to claim 17, Bjerkman et al disclose the sensor (4) oriented substantially parallel to wire (11).

With respect to claim 18, Bjerkman et al disclose the use of plastic as a polymeric coating (see column 4, lines 10-13).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 8, 10-11, 19-24, & 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,784,983 B1 to Bjerkan et al.

Bjerkan et al disclose the device as described in the discussion of claims 1, 3-7, 9, 12-13, & 16-18.

With respect to claim 8, Bjerkan et al does not explicitly disclose a magnetorestrictive coating, but such would have been obvious to one of ordinary skill in the art because such would prevent the magnetic field from adversely affecting the operation of the sensor.

With respect to claim 10, the modified Bjerkan et al does not explicitly disclose a visual/aural indication, but such would be obvious to one of ordinary skill in the art in order to allow the proper notification of the user.

With respect to claim 11, the modified Bjerkan et al does not explicitly disclose the storage of data, but such would have been obvious to one of ordinary skill in the art because such would allow continuous monitoring of the trend of operation.

With respect to claim 19, the modified Bjerkan et al does not explicitly disclose the use of extruding a polymeric material, but such would have been obvious to one of ordinary skill in the art in order to allow for appropriate monitoring of the wire (11).

With respect to claim 20, the modified Bjerkan et al does disclose the use of a tube (10), but does not explicitly disclose it to be heat-shrunk. However, such would have been obvious to one of ordinary skill in the art in order to obtain a tight seal over the fiber sensors (4).

With respect to claim 21, the modified Bjerkan et al does not explicitly disclose the polymeric material to be one of the following, but such would have been obvious to one of ordinary skill in the art because such allow for ease of manufacturing at a relatively manageable cost.

With respect to claim 22, the modified Bjerkan et al does disclose the use of a tube (10), but does not explicitly disclose it to be heat-shrunk. However, such would have been obvious to one of ordinary skill in the art in order to obtain a tight seal over the fiber sensors (4).

With respect to claim 23, Bjerkan et al disclose a system for monitoring cables comprising: Bragg gratings (4) as a fiber optic condition sensor embedded within a tube (10). The tube (10) is embedded with electric wires (11) within coated cable (1) (see figure 5). Wire (11) serves as a wire element including one electrical conductor, while

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cable (1) serves as an electrical insulator surrounding wire element (11). Bragg gratings have a predetermined calibration to see the effect of strain on the gratings (see column 3, lines 22-27). The sensors (4) are able to determine changes along the cable (see column 3, lines 28-32). Bjerkan et al disclose detector system (7) as a data acquisition system and a monitor for providing a signal of the condition. However, Bjerkan et al does not explicitly disclose that the sensor (4) is to monitor the wear condition of the electrical insulator, but such would have been obvious to one of ordinary skill in the art because the strain that the wire (11) is subjected to would be closely related to the strain of the insulator (1).

With respect to claim 24, the modified Bjerkan et al does not explicitly disclose a visual/aural indication, but such would be obvious to one of ordinary skill in the art in order to allow the proper notification of the user.

With respect to claims 44-45, the modified Bjerkan discloses sensors (4, 4A) as being capable of monitoring temperature conditions (see column 3, lines 52-67).

With respect to claim 46, Bjerkan et al disclose a system for monitoring cables comprising: Bragg gratings (4) as a fiber optic condition sensor embedded within a tube (10). The tube (10) is embedded with electric wires (11) within coated cable (1) (see figure 5). Bragg gratings have a predetermined calibration to see the effect of strain on the gratings (see column 3, lines 22-27). The sensors (4) are able to determine changes along the cable (see column 3, lines 28-32). Bjerkan et al does not explicitly disclose a magnetostrictive coating, but such would have been obvious to one of



ordinary skill in the art because such would prevent the magnetic field from adversely affecting the operation of the sensor.

With respect to claim 47, the modified Bjerkan et al disclose detector system (7) as a data acquisition system and a monitor for providing a signal of the condition.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1, 3-14, 16-24, & 44-47 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-

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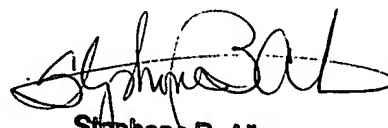
2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J. Lee  
Examiner  
Art Unit 2878

PJL  
March 6, 2006



Stephane B. Allen  
Primary Examiner